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To: Mary Kauffman and Mike Rowe (IDEQ)

Date: November 2, 2006

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From: Mark Rettmann, MWH
Tressa K. Pearson-Franks, MWH
Bill Wright, MWH

Reference: P4 Production Southeast Idaho Mine-Specific Selenium Program

Subject: October 2005 Groundwater Data Validation Report Memorandum, Final

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This memorandum transmits the final version of the October 2005 Groundwater Data Submittal which includes the *P4 Production Geology and Groundwater Investigation—October 2005 Data Validation and Quality Control Summary Report* and the following tables.

- Table 1: *October 2005 Groundwater Analytical Data - Filtered Metals (mg/L) - Censored Data*
- Table 2: *October 2005 Groundwater Analytical Data - Unfiltered Metals (mg/L) - Censored Data*
- Table 3: *October 2005 Groundwater Analytical Data - Filtered Ions (mg/L) - Censored Data*
- Table 4: *October 2005 Groundwater Analytical Data - Filtered Speciation (mg/L) - Censored Data*
- Table 5: *October 2005 Groundwater Quality Assurance Data - Unfiltered Metals (mg/L) - Censored Data*
- Table 6: *October 2005 Groundwater Quality Assurance Data - Filtered Metals (mg/L) - Censored Data*
- Table 7: *October 2005 Groundwater Quality Assurance Data - Filtered Ions (mg/L) - Censored Data*

Tables containing uncensored data have been included as Appendix A.

- Table 8: *October 2005 Groundwater Analytical Data - Filtered Metals (mg/L) - Uncensored Data*
- Table 9: *October 2005 Groundwater Analytical Data - Unfiltered Metals (mg/L) - Uncensored Data*
- Table 10: *October 2005 Groundwater Analytical Data - Filtered Ions (mg/L) - Uncensored Data*
- Table 11: *October 2005 Groundwater Analytical Data - Filtered Speciation, (mg/L) - Uncensored Data*
- Table 12: *October 2005 Groundwater Quality Assurance Data - Unfiltered Metals (mg/L) - Uncensored Data*
- Table 13: *October 2005 Groundwater Quality Assurance Data - Filtered Metals (mg/L) - Uncensored Data*
- Table 14: *October 2005 Groundwater Quality Assurance Data - Filtered Ions (mg/L) - Uncensored Data*

The October 2005 groundwater sampling was conducted in support of the Site Investigation Work Plan: Task 3—Geology and Groundwater Investigation; Task 3b—Phase II Investigation, and more specifically, the 2005 Phase II Supplemental SI Work Plan Activity 3b-3—Existing Well Sampling and Groundwater Level Monitoring.

The sampling was conducted in accordance with the *Final Phase II Supplemental SI Work Plan* (MWH, 2005) and relevant portions of the mine-specific work plans, project FSPs, and program SAP (MWH, 2004) in support of the P4 Production Southeast Idaho Mine-Specific Selenium Program at Enoch Valley, Henry, and Ballard Mines.

Analysis of selenium species were conducted in accordance with *the Monitoring Well Installation Technical Memorandum* (MWH, version 4 September 2006).

The groundwater analyte list includes the analtyes indicated in Table 6-3 of the SAP in addition to those listed in Table 1 of the Phase II Supplemental SI Work Plan. A comprehensive list of the groundwater analytes, analysis methods, detection limits, reporting units, and holding times are shown in Table I. The listed estimated detection limit (EDL), is the projected laboratory reporting limit and does not account for reporting limits that may be elevated on a sample-specific basis due to dilution, contamination, or other analytical issues. Reporting limits shown in the data tables reflect any necessary elevations resulting from the data validation process.

Data produced by ACZ Laboratories, Inc., Applied Speciation and Consulting, LLC and Analytical Resources, Inc. were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994). The data were considered usable as a result of the validation.

Agency comments and responses have been included as Appendix B.

Table I: Groundwater Analytes					
Laboratory Analyte	**Method**	**EDL**	**PQL**	**Reporting Unit**	**Holding Time**
Aluminum, dissolved	M200.7 ICP	0.030	0.20	mg/L	180 days
Cadmium, dissolved	M200.8 ICP-MS	0.00010	0.00050	mg/L	180 days
Cadmium, total	M200.8 ICP-MS	0.00010	0.00050	mg/L	180 days
Calcium, dissolved	M200.7 ICP	0.20	1.0	mg/L	180 days
Carbon, total organic	M415.1 Combustion/IR	1.0	5.0	mg/L	28 days
Chloride	M300.0 - Ion Chromatography	0.5	3.0	mg/L	28 days
Chromium, dissolved	M200.8 ICP-MS	0.00010	0.00050	mg/L	180 days
Chromium, total	M200.8 ICP-MS	0.00010	0.00050	mg/L	180 days
Iron, dissolved	M200.7 ICP	0.020	0.050	mg/L	180 days
Iron, total	M200.7 ICP	0.020	0.050	mg/L	180 days
Magnesium, dissolved	M200.7 ICP	0.20	1.0	mg/L	180 days
Manganese, dissolved	M200.8 ICP-MS	0.0010	0.0050	mg/L	180 days
Manganese, total	M200.8 ICP-MS	0.0010	0.0050	mg/L	180 days
Nickel, dissolved	M200.8 ICP-MS	0.00060	0.0030	mg/L	180 days
Nickel, total	M200.8 ICP-MS	0.00060	0.0030	mg/L	180 days
Nitrate/Nitrite as N	M353.2 - H2SO4 preserved	0.020	0.10	mg/L	28 days
Phosphorus, ortho dissolved	M365.1 - Ascorbic Acid	0.010	0.050	mg/L	14 days
Potassium, dissolved	M200.7 ICP	0.30	1.0	mg/L	180 days
Selenium, dissolved	SM 3114 B, AA-Hydride	0.0010	0.0050	mg/L	180 days
Selenium, total	SM 3114 B, AA-Hydride	0.0010	0.0050	mg/L	180 days
Selenium, IV	ASC-084.1, IC/ICP-MS	0.00014	0.00042	mg/L	7 days
Selenium, VI	ASC-084.1, IC/ICP-MS	0.000053	0.00016	mg/L	7 days
Sodium, dissolved	M200.7 ICP	0.30	1.0	mg/L	180 days
Sulfate	M300.0 - Ion Chromatography	0.50	3.0	mg/L	28 days
Total Alkalinity	SM2320B - Titration	2.0	20	mg/L	14 Days
Vanadium, dissolved	M200.8 ICP-MS	0.00020	0.0010	mg/L	180 days
Vanadium, total	M200.8 ICP-MS	0.00020	0.0010	mg/L	180 days
Zinc, dissolved	M200.8 ICP-MS	0.0020	0.010	mg/L	180 days
Zinc, total	M200.8 ICP-MS	0.0020	0.010	mg/L	180 days

Note:
Methods are for media (non-blank) samples.
Blanks will be analyzed for unfiltered results as analyte methods allow.
EDL – Estimated Detection Limit

P4 PRODUCTION

GEOLOGY AND GROUNDWATER INVESTIGATION—OCTOBER 2005

DATA VALIDATION AND QUALITY CONTROL

SUMMARY REPORT: FINAL

The following is a summary of the data validation and quality control (QC) review of October 2005 groundwater data completed as part of the Site Investigation (Site Investigation Work Plan: Task 3—Geology and Groundwater Investigation; Task 3b—Phase II Investigation, 2005 Phase II Supplemental SI Work Plan Activity 3b-3—Existing Well Sampling and Groundwater Level Monitoring). This effort was completed on behalf of P4 Production, LLC. ACZ Laboratories, Inc. (ACZ) was the primary analytical laboratory performing the analyses. Applied Speciation and Consulting, LLC (ASL) was the quality assurance (QA) laboratory tasked with analyzing QA samples. ASL subcontracted the analyses of select analytes to Analytical Resources, Inc. (ASL/ARI). All laboratories were selected prior to sampling, and were proficient in the analysis of metals and other parameters as requested by the Idaho Department of Environmental Quality (IDEQ). Data analyzed by ACZ, ARI and ASL were subjected to validation procedures outlined by the *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses* (EPA, December 1994).

Samples from four groundwater sampling stations were collected and submitted to ACZ for analyses. One of the four sampling stations was selected as a QA/QC station. Samples collected at a QA/QC station consisted of four replicate samples, and a source water blank. One of the four replicate samples was sent to ASL/ARI for analysis, the remainder were analyzed by ACZ.

An equipment blank was not necessary since all dedicated and/or disposable sampling equipment was utilized. A total of seven samples were analyzed by ACZ and one QA/QC sample was analyzed by the ASL/ARI. In addition, a total of six samples were analyzed for selenium species by ASL (excluding filed spikes and experimentally preserved samples). All sample submittals were made under chain-of-custody protocols.

ACZ analyzed the samples for the following:

- M200.7 ICP (Al, Ca, Fe, K, Mg, Na)
- M200.8 ICP-MS (Cd, Cr, Mn, Ni, V, and Zn)
- SM3114B AA-Hydride (Se)
- M150.1 Laboratory pH
- M300.0 Ion Chromatography (chloride and sulfate)
- M353.2 Nitrate and nitrite
- M365.1 Automated ascorbic acid (ortho-phosphorus
- M415.1 Combustion/IR (total organic carbon)
- SM2320B - Titration (total alkalinity)

ASL/ARI analyzed the samples for the following:

- ASC-084.1 IC/ICP/MS [Se(IV), Se(VI)]
- M200.8 ICP/DRC/MS (Al, Ca, Cd, Cr, Fe, K, Mg, Mn, Na, Ni, V, Se, and Zn)
- M150.1 Laboratory pH
- M310.1 Total alkalinity
- M325.1 Chloride

- M353.2 Nitrate and nitrite
- M365.1 Automated ascorbic acid (ortho-phosphorus
- M375.2 Sulfate

Data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of these data required to meet the goals of site investigation and/or to support decisions made in environmental management activities. DQOs for Task 3—Geology and Groundwater Investigation (October 2005 groundwater) were expressed in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC). The results of QC samples were evaluated against the DQOs and the quality of the data was assessed according to the PARCC parameters. QC sample results that fall outside these criteria serve to signal unacceptable or biased data that could result in corrective actions being implemented, or qualification of the data. Overall data quality was assessed according to the PARCC parameters, which also includes evaluation of analysis basis (unfiltered and filtered), analytes identified as contaminants of potential concern (COPC) and sampling requirements. The following is a summary review of these data, including data qualification that resulted from the data validation.

Precision and Accuracy

Precision and accuracy were evaluated based on the QC results generated from calibrations, spiked samples, laboratory duplicates, interference check samples, laboratory control samples and serial dilutions.

- All ACZ calibrations were acceptable. ASL/ARI calibration results were acceptable with some minor qualifications for Se(VI), Ca, K and Na. Calibrations were run as initial calibration verifications and continuing calibration verifications.
- All ACZ spike recoveries were acceptable. ASL/ARI spike recoveries were acceptable.
- ACZ ran acceptable laboratory duplicates on the samples. Duplicate samples were validated from field and laboratory duplicates. All ASL/ARI duplicate results were acceptable.
- Interference check samples were analyzed only by ACZ for Ca, Mg, K, and Na. Recoveries were acceptable. Interference check samples were not analyzed by ASL.
- All ACZ and ASL/ARI laboratory control samples (LCS) were acceptable.

Representativeness

Representativeness is evaluated by reviewing blank results and overall data quality. Blanks are analyzed before and during the analytical process. ACZ and ASL/ARI analyzed blanks using initial calibration blanks and continuing calibration blanks (ICB/CCB). ACZ blank results were acceptable with some minor qualifications. ACZ reported blank detects for Cr, Cd & Fe [unfiltered], and Cr, Na & V [filtered]. ASL/ARI results blank results were acceptable. The sample results associated with the detected blanks that were greater than the method detection limit and less than five times the detected blank were qualified as undetected at five times the highest blank detection for that particular analyte. All other blank results were below detection limit.

Only filtered samples were obtained from monitoring wells during previous groundwater sampling events, but this and future events will entail collecting both filtered and unfiltered

samples from such wells. Unfiltered groundwater samples from turbid (NTU > 1) monitoring wells may not be representative of groundwater quality to which a receptor, obtaining water from an appropriately designed and constructed well, may be exposed to. Historic and current data will be compared to investigate a potential correlation between unfiltered samples obtained from fully developed wells and filtered samples obtained from turbid wells.

Completeness

All samples were collected and analyzed as specified in the *Comprehensive Site Investigation, Sampling and Analysis Plan—Final* (MWH, 2004) and the *2005 Phase II Supplemental SI Groundwater Work Plan—Final* (MWH, 2005). ACZ and ASL/ARI analytical data and laboratory QC data were complete. Both laboratories provided raw data packets that contained information on the specific analytes for which samples were analyzed. Field QA/QC samples were collected and analyzed by ACZ and ASL/ARI as required. Analytical data were discoverable in raw data packets from ACZ and ASL. ASL/ARI performed QA/QC analyses on all analytes analyzed by ACZ. ACZ analyzed all samples within specified holding times except for two chloride/sulfate samples (ACZ ID L54005-04, -06) and five ortho-phosphorus samples (ACZ ID L54005-02, -04, -06 and L54051-02, -04). Associated ACZ sample results less than the sample-specific MDL were qualified as estimated at the associated MDL (i.e., 1.0 UJ), and sample results >MDL were qualified as estimated (J). ASL/ARI analyzed all samples within specified holding times for all analytes. Spike quantities were printed on various QC sheets.

Comparability

Comparability was achieved by ACZ and ASL/ARI analyzing the samples according to the required methods. Each laboratory used acceptable methodology, recognized by the EPA. Method detection limits were reported by each laboratory for each specific analyte and included in either the raw data packet or electronic files.

Due to suspended solid contamination of unfiltered groundwater samples from turbid monitoring wells, unfiltered samples acquired in Fall 2005 and in the future may not be comparable with filtered results obtained during previous groundwater sampling events. P4 has agreed to take both filtered and unfiltered samples for all analyte metals for this and all subsequent sampling events. This will enable an investigation to determine whether filtered samples from turbid wells can be considered representative.

Summary of Data Quality

The evaluation of the PARCC criteria provided information on the quality of the data. The data were considered usable as a result of the validation.

References

US Environmental Protection Agency, 1994. "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses. " Publication 9240.1-26, EPA/540/R/94/083, PB95-963525. Office of Solid Waste and Emergency Response, USEPA, Washington, D. C.

MWH, 2004. "Comprehensive Site Investigation, Sampling and Analysis Plan—Final, P4 Production Southeast Idaho Mine-Specific Selenium Program. March. Seattle, WA.

MWH, 2005. "2005 Phase II Supplemental SI Groundwater Work Plan—Final, P4 Production Southeast Idaho Mine-Specific Selenium Program. June. Seattle, WA.

INORGANIC DATA ASSESSMENT SUMMARY

PROJECT: P4 Production, LLC Southeast Idaho Mine-Specific Selenium Program	SITE: Enoch Valley Mine, Henry Mine, and Ballard Mine
LABORATORY: Primary Laboratory: ACZ QA Laboratory: ASL/ARI	SDG: ACZ Project IDs: L54005 and 54051 ASL Report Date: November 18, 2005.

SAMPLES/MATRIX/ANALYSES:

Task 3—Geology and Groundwater Investigation, Subtask 3b—Phase II Investigation, 2005 Phase II Supplemental SI Work Plan Activity 3b-3—Existing Well Sampling and Groundwater Level Monitoring.

- October 2005
- Matrix: Groundwater
- Methods & Analyses:
- ACZ: M200.7 ICP (Al, Ca, Fe, K, Mg, Na), M200.8 ICP-MS (Cd, Cr, Mn, Ni, V, and Zn), SM3114B AA-Hydride (Se), M150.1 Laboratory pH, M300.0 Ion Chromatography (chloride and sulfate), M353.2 Nitrate and nitrite, M365.1 Automated ascorbic acid (ortho-phosphorus), M415.1 Combustion/IR (total organic carbon), SM2320B - titration (total alkalinity). All analyses on a filtered and/or unfiltered basis as requested.
- ASL/ARI: M200.8 ICP/DRC/MS (Al, Ca, Cd, Cr, Fe, K, Mg, Mn, Na, Ni, V, Se, and Zn), M150.1 Laboratory pH, M310.1 Total alkalinity, M325.1 Chloride, M353.2 Nitrate and nitrite, M365.1 Automated ascorbic acid (otho-phosphorus), M375.2 Sulfate, ASC-084.1 IC/ICP/MS [Se(IV), Se(VI)]. All analyses on a filtered and/or unfiltered basis as requested.

DATA ASSESSMENT SUMMARY

REVIEW ITEM	ICP	AA (ACZ)	HG	CYANIDE	OTHER
1. Data Completeness	O	O			O
2. Holding Times	O	O			O
3. Calibration	O	O			O
4. Blanks	O	O			O
5. Interference Checks	O, N/A	N/A			N/A
6. LCS	O	O			O
7. Duplicate	O	O			O
8. Spike Recovery	O	O			O, N/A
9. GFAA Performance	N/A	N/A			N/A
10. Serial Dilution	N/A	N/A			N/A
11. Field Duplicates	N/A	N/A			O, N/A
12. Result Verification	O	O			O
13. Overall Assessment	O	O			O

O=Data had no problems/or qualified due to minor problems.
M=Data qualified due to major problems.
NA=Data review item not applicable.
X=Problems but do not affect data.
Z=Data unacceptable.

Comments/Qualified Results:

- This data validation summary summarizes all individual analyte data assessments for P4 Production's October 2005 groundwater data. See individual sections below for a summary of the results from the individual analyte data validation assessments. All ACZ and ASL/ARI data were acceptable with some minor qualifications.

Verified and Validated by: Mark Rettmann, Tressa Pearson-Franks Date: Feb. 27, 2006, Aug. 8, 2006
Reviewed and Approved by: Mark Rettmann Date: Sept. 11, 2006

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
1. Data package completeness (check if present)	X	

X Case narrative	X Instrument Detection Limits
X Chain of custody	ICP Correction Factors
X Sample Results	ICP Linear Ranges
X ICV/CCV Results	X Preparation Logs
X Blank Results	X Analysis Run Logs
X ICP Interference Check Results	X ICP Raw Data
X Spike Recovery Results	GFAA Raw Data
X Duplicate Results	Hg Raw Data
X LCS Results	Cyanide Raw Data
Standard Addition Results	X Other: Bench sheets
ICP Serial Dilution	

Comments/Qualified Results:

- No qualification necessary.

2. Holding times (check all that apply)	X	

X ICP/GFAA metals completed in <6 mos from collection
Mercury analyzed in <28 days from collection
Cyanide completed in 14 days from collection

Qualify as estimated (J, UJ) all results analyzed past the holding times listed but within 2X the limit. Qualify detects as estimated (J) and non-detects unusable (UR) for results analyzed greater than 2X above the limit. If soil data are qualified based on water holding time criteria, note.

Comments/Qualified Results:

- ACZ - Holding times were met for all samples/analyses except for two chloride/sulfate samples (ACZ ID L54005-04, -06) and five ortho-phosphorus samples (ACZ ID L54005-02, -04, -06 and L54051-02, -04). Associated sample results less than the sample-specific MDL were qualified as estimated at the associated MDL (i.e. 1.0 UJ), and sample results >MDL were qualified as estimated (J).
- ASL/ARI - Holding times were met for all analyses. No qualification necessary.

3. Calibrations (check all that apply)	X	

GFAA/Hg correlation coefficient <0.995, results estimated (J, UJ)
X ICV/CCV %R, ICP 89-111%, Hg 80-120%, Cn 85-115%, results acceptable
X ICV/CCV %R, ICP 75-89%, Hg 65-79%, Cn 70-84%m results <IDL estimated (UJ)
ICV/CCV %R, ICP <75%, Hg <65%, Cn <70%, results unusable (R)
ICV/CCV %R, ICP >125%, Hg >135%, Cn >130%, results >IDL unusable (R), <IDL acceptable
X ICV/CCV %R, ICP 75-89% or 111-125%, Cn 70-84% or 116-130%, results >IDL estimated (J)

Comments/Qualified Results:

- ACZ - All calibrations were acceptable.
- ASL/ARI - All calibrations were acceptable with minor qualifications for Se(VI), Cd, K, Na.

	Acceptable Yes	No
4. Blanks (check all that apply)	X	

__X__ Detects reported ICB/CCB, list (ACZ):
- Unfiltered Cadmium (uCd), CCB detections: 0.00011, and 0.00012 mg/L
- Filtered Chromium (fCr), ICB detections: 0.00015 mg/L, CCB detections: 0.00012, 0.00018, 0.00021, 0.00015, 0.00020, and 0.00017 mg/L.
- Unfiltered Chromium (uCr), CCB detections: 0.00032 mg/L.
- Filtered Vanadium (fV), CCB detections: 0.00030 and 0.00038 mg/L.

__X__ Detects in preparation blanks, list:
- Unfiltered Iron (uFe), Laboratory reagent blank detections: 0.047, and 0.035 mg/L. (ACZ)
- Chromium (uCr, fCr), preparation blank detection: 0.000041 mg/L. (ASL)

__X__ Detects in field blanks, list (ACZ):
- Unfiltered Chromium, Field blank detection: L54005-07 at 0.00020 mg/L.
- Unfiltered Sodium (uNa), DI water source blank detection: 1.0 mg/L.

Qualify as undetected (U) all sample concentrations $\leq$5 X any blank concentrations.

Comments/Qualified Results:
- ACZ - All blanks were reported below the detection limit and were acceptable except for ICB/CCB detections (uCd, fCr, uCr, fV), preparation blanks (uFe) and field blanks (uCr, uNa). The exceptions were qualified as undetected at five times the highest blank detection for each analyte (uCd: 0.00060 U, fCr: 0.0011 U, uCr: 0.0016 U, uFe: 0.24 U, uNa: 5.0 U, fV: 0.0019 U).
- ASL/ARI - All blanks were reported below the detection limit and were acceptable except one preparation blank (PB) for Cr. The elevated PB was identified as a Grubb's outlier and was not used for calculations or blank correction. This blank is not considered to be representative of the applied method. All sample results were greater than 10x the blank level. On this basis, no qualification was necessary.

	Acceptable Yes	No
5. Interference Checks (check all that apply)	X	

__X__ ICS A/B Recoveries Acceptable
_____ Al, Ca, Fe, Mg sample concentrations >ICS concentrations
_____ ICS %R> 120%, results > IDL estimated (J)
_____ ICS %R 50-79%, results>IDL estimated (J), possible false negative
_____ ICS %R 50-79%, results <IDL estimated (UJ)
_____ ICS %R <50%, results >IDL and <IDL rejected (R/UR)
_____ ICS %R>120, results <IDL acceptable

Comments/Qualified Results:
- ACZ – All applicable ICS recoveries were acceptable (Ca, K, Mg, Na).
- ASL/ARI – Not Applicable.

	Acceptable Yes	No
6. Laboratory Control Samples (check all that apply)	X	

__X__ LCS %R 80-120 (Ag, Sb no limits); if 95% confidence range is given, such range prevails.
_____ LCS %R 50-79% or >120%, results>IDL estimated (J); or outside of 95% confidence range.
_____ LCS %R 50-79% and results <IDL estimated (UJ); or outside the lower end of 95% confidence range.
_____ LCS %R <50% and all results rejected (R/UR)
_____ LCS %R >120%, results <IDL acceptable; or outside the upper end of 95% confidence range.

Comments/Qualified Results:

- ACZ - All LCS and LCS duplicates were acceptable.
- ASL/ARI – All LCS were acceptable.

7. Duplicate (check all that apply)	X	

__X__ Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL
__X__ Duplicate Range is within ±CRDL (±2xCRDL for soils) for results ≤ 5X CRDL
_____ Qualify positive results estimated (J) if the above criteria were not met.

Comments/Qualified Results:

- ACZ - Duplicate results were acceptable.
- ASL/ARI – Duplicate results were acceptable. Analysis of sample 103005GWMMW004-4-F produced a result of 76 µg/L Zn while the matrix duplicate produced a result of 37 µg/L Zn. Both results are less than 5x the MDL (45*5 = 225) and are ±MDL; one this basis no qualification is required. However spike analysis indicated that the result of 37 µg/L Zn is more representative of the sample concentration, due to potential spot contamination of the original sample aliquot. This sample has been reported at 37 µg/L Zn (uncensored) or 45 U µg/L Zn (censored) and has been qualified as an estimate (J).

8. Spike Recovery (check all that apply)	X	

__X__ Spike %R with 75-125%
_____ Spike %R 30-74%, >125%, results >IDL estimated (J)
_____ Spike %R 30-74% results <IDL estimated (UJ)
_____ Spike %R <30%, results <IDL rejected (UR)
_____ Field blank used for spike analysis
_____ Spike %R >125%, results <IDL acceptable
_____ Sample concentration exceeds spike concentration by a factor of >4x, acceptable

Comments/Qualified Results:

- ACZ - All spike recoveries were acceptable.
- ASL/ARI - All spike recoveries were acceptable.

	Acceptable Yes	No
9. GFAA Performance	NA	
10. Serial Dilution	NA	
11. Field Duplicates (check all that apply)	X	

X Field duplicate RPD ≤20% waters (≤35% for soils)
X Field duplicate range is within ±CRDL (±2x CRDL for soils) for results <5xCRDL

Note: There are no qualification requirements for field QC samples exceeding limits.

Comments/Qualified Results:

- ACZ - No qualification requirements for field QC.
- ASL/ARI - No qualification requirements for field QC. Three triplicate samples were taken at one QA/QC station; one preserved normally, one preserved with EDTA and one contained a field spike. Two of the three triplicate samples were acceptable. The RSD for the field-spiked sample was 62%. One of the field spike replicates may have lost some of the spiked standard prior to sampling. Calculation of the RPD for the two correctly spiked samples was acceptable.

12. Result Verification (check all that apply)	X	

X All results supported in raw data

Comments/Qualified Results:

- ACZ - All results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.
- ASL/ARI - All results below the respective detection limits were reported as BDL (below detection limit). Data not checked 100%, but no transcription errors/anomalies were noted on items checked.

INORGANIC DATA ASSESSMENT SUMMARY

	Acceptable Yes	No
13. Overall Assessment	X	

- ACZ and ASL/ARI data were acceptable.
  No ACZ data were qualified except for chloride, sulfate, filtered ortho-phosphorus, unfiltered (u) Cd, filtered (f) Cr, uCr, uFe, uNa, and fV. Chloride/sulfate samples (ACZ ID L54005-04, -06) and five filtered ortho-phosphorus samples (ACZ ID L54005-02, -04, -06 and L54051-02, -04) results less than the sample-specific MDL were qualified as estimated at the associated MDL (i.e., 0.010 UJ), and sample results >MDL were qualified as estimated (J) due to holding time exceedances.
  The remaining exceptions were qualified as undetected at five times the highest blank detection for each analyte (uCd: 0.00060 U, fCr: 0.0011 U, uCr: 0.0016 U, uFe: 0.24 U, uNa: 5.0 U, fV: 0.0019 U).
  Both ACZ and ASL/ARI results reported below the sample-specific detection limit were qualified as undetected at the corresponding sample-specific detection limit (i.e., 0.00030 U).
  No ASL/ARI data were qualified except for Zn, which was qualified as an estimate (J) due to possible spot contamination.
- Discussion is included in the above sections, as well as in the data validation assessment summary for each analyte from ACZ and ASL/ARI.

Table 1: October 2005 Groundwater Analytical Data - Filtered Metals (mg/L) - Censored Data																					
Feature	**Station Name**	**Station**	**Aluminum**	**Flag**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Iron**	**Flag**	**Manganese**	**Flag**	**Nickel**	**Flag**	**Phosphorus (ortho)**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Monitoring Well	Ballard Pit East Well	MMW001	<0.030	U	0.0029		<0.0011	U	<0.020	U	0.059		0.045		0.050		0.072		0.0053		0.25	
	Ballard Pit West Well	MMW002	<0.030	U	<0.00010	U	<0.0011	U	<0.020	U	0.0074		0.0041		<0.010	UJ	0.022		<0.00020	U	0.16	
	Henry North Pit Well North	MMW004[a]	<0.030	U	<0.00010	U	<0.0011	U	<0.020	U	0.0028		<0.00060	U	0.080	J	0.0013		<0.0019	U	0.039	
Production Well	Henry South Pit Well	MPW022	<0.030	U	<0.00010	U	<0.0011	U	4.3		0.23		<0.00060	U	0.020		<0.0010	U	<0.00020	U	0.13	

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 2: October 2005 Groundwater Analytical Data - Unfiltered Metals (mg/L) - Censored Data																				
Feature	**Station Name**	**Station**	**Cadmium**	**Flag**	**Chromium**	**Flag**	**Iron**	**Flag**	**Manganese**	**Flag**	**Nickel**	**Flag**	**Nitrogen as NO_2/NO_3**	**Flag**	**Selenium**	**Flag**	**Vanadium**	**Flag**	**Zinc**	**Flag**
Monitoring Well	Ballard Pit East Well	MMW001	<0.050	U	<0.050	U	<0.24	U	<0.30	U	<0.30	U	0.69		0.069		<0.10	U	450	
	Ballard Pit West Well	MMW002	<0.050	U	<0.050	U	1.0		<0.30	U	<0.30	U	0.020	U	0.022		<0.10	U	460	
	Henry North Pit Monitoring Well North	MMW004[a]	<0.10	U	<0.10	U	0.63		<0.50	U	<0.60	U	1.4		<0.0010	U	<0.20	U	480	
Production Well	Henry South Pit Well	MPW022	<0.10	U	<0.10	U	8.1		<0.50	U	<0.60	U	0.020	U	<0.0010	U	<0.20	U	550	

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 3: October 2005 Groundwater Analytical Data - Filtered Ions (mg/L) - Censored Data

Feature	Station Name	Station	Calcium	Flag	Chloride	Flag	Magnesium	Flag	Potassium	Flag	Sodium	Flag	Sulfate	Flag	Total Alkalinity	Flag
Monitoring Well	Ballard Pit East Well	MMW001	110		6.0		22		0.90		11		98		260	
	Ballard Pit West Well	MMW002	73		14		40		1.6		17		59		290	
	Henry North Pit Monitoring Well North	MMW004[a]	77		57	J	27		3.6		45		130		170	
Production Well	Henry South Pit Production Well	MPW022	50		5.0		13		1.3		7.0		<0.50	U	180	

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 4: October 2005 Groundwater Analytical Data - Filtered Speciation (mg/L) - Censored Data

Feature	Station Name	Station	Se (total)	Flag	Se(IV)	Flag	Se(VI)	Flag
Monitoring Well	Ballard Pit East Well	MMW001	0.053		0.00034		0.069	
	Ballard Pit West Well	MMW002	0.022		0.0058		0.012	
	Henry North Pit Monitoring Well North	MMW004[a]	0.0018		<0.00014	U	0.0017	
Production Well	Henry South Pit Production Well	MPW022	<0.00010	U	<0.00014	U	<0.000050	U

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 5: October 2005 Groundwater Quality Assurance Data - Unfiltered Metals (mg/L) - Censored Data

Feature	Station Name	Station	Alkalinity	Flag	Cadmium	Flag	Chromium	Flag	Iron	Flag	Manganese	Flag	Nickel	Flag	Selenium	Flag	Total Organic Carbon	Flag	Vanadium	Flag	Zinc	Flag
Monitoring Well	Henry North Pit Monitoring Well North	MMW004	160		0.00056		0.00075		0.73		0.012		0.0010		0.026		<1.5	U	0.0025		490	

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 6: October 2005 Groundwater Quality Assurance Data - Filtered Metals (mg/L) - Censored Data

Feature	Station Name	Station	Aluminum	Flag	Cadmium	Flag	Chromium	Flag	Iron	Flag	Manganese	Flag	Nickel	Flag	Phosphorus (ortho)	Flag	Selenium	Flag	Vanadium	Flag	Zinc	Flag
Monitoring Well	Henry North Pit Monitoring Well North	MMW004	0.010		<0.000050	U	0.00057		<0.015	U	0.0033		0.0010		0.084		0.0017		0.0023		<0.045	UJ

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 7: October 2005 Groundwater Quality Assurance Data - Filtered Ions (mg/L) - Censored Data

Feature	Station Name	Station	Calcium	Flag	Chloride	Flag	Magnesium	Flag	Nitrogen as NO_2/NO_3	Flag	Potassium	Flag	Sodium	Flag	Sulfate	Flag
Monitoring Well	Henry North Pit Monitoring Well North	MMW004	66		59		30		1.4		3.3		39		140	

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Appendix A
Uncensored Data Tables

Table 8: October 2005 Groundwater Analytical Data - Filtered Metals (mg/L) - Uncensored

Feature	Station Name	Station	Aluminum	RL	Flag	Cadmium	RL	Flag	Chromium	RL	Flag	Iron	RL	Flag	Manganese	RL	Flag	Nickel	RL	Flag	Phosphorus (ortho)	RL	Flag	Selenium	RL	Flag	Vanadium	RL	Flag	Zinc	RL	Flag
Monitoring Well	Ballard Pit East Well	MMW001	0.0090	0.030	U	0.0029			0.00020	0.0011	U	-0.0010	0.020	U	0.059			0.045			0.050			0.072			0.0053			0.25		
	Ballard Pit West Well	MMW002	0.010	0.030	U	0.000060	0.00010	U	0.00020	0.0011	U	0.0020	0.020	U	0.0074			0.0041			0.0050	0.010	UJ	0.022			-0.00010	0.00020	U	0.16		
	Henry North Pit Monitoring Well North	MMW004[a]	0.018	0.030	U	0.000010	0.00010	U	0.00047	0.0011	U	0.0067	0.020	U	0.0028			0.00026	0.00060	U	0.080		J	0.0013			0.0018	0.0020	U	0.039		
Production Well	Henry South Pit Production Well	MPW022	-0.019	0.030	U	0.000010	0.00010	U	0.00010	0.0011	U	4.3			0.23			0.00023	0.0060	U	0.020			-0.00035	0.0010	U	-0.00050	0.00020	U	0.13		

Notes:
[a] Average of the QA replicate samples reported.
Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses*.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 9: October 2005 Groundwater Analytical Data - Unfiltered Metals (mg/L) - Uncensored

Feature	Station Name	Station	Cadmium	RL	Flag	Chromium	RL	Flag	Iron	RL	Flag	Manganese	RL	Flag	Nickel	RL	Flag	Nitrogen as NO_2/NO_3	RL	Flag	Selenium	RL	Flag	Vanadium	RL	Flag	Zinc	RL	Flag
Monitoring Well	Ballard Pit East Well	MMW001	-0.027	0.050	U	-0.0051	0.050	U	0.20	0.24	U	0.30	0.30	U	0.059	0.30	U	0.69			0.069			-0.057	0.10	U	450		
	Ballard Pit West Well	MMW002	-0.032	0.050	U	0.0046	0.050	U	1.0			0.10	0.30	U	0.023	0.30	U	0.0076	0.020	U	0.022			-0.051	0.10	U	460		
	Henry North Pit Monitoring Well North	MMW004[a]	0.0029	0.10	U	-0.0074	0.10	U	0.63			0.053	0.50	U	-0.0035	0.60	U	1.4			-0.0012	0.0010	U	-0.13	0.20	U	480		
Production Well	Henry South Pit Production Well	MPW022	0.00085	0.10	U	-0.0062	0.10	U	8.1			0.37	0.50	U	0.0022	0.60	U	0.0098	0.020	U	-0.0013	0.0010	U	-0.19	0.20	U	550		

Notes:
[a] Average of the QA replicate samples reported.
Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses*.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 10: October 2005 Groundwater Analytical Data - Filtered Ions (mg/L) - Uncensored

Feature	Station Name	Station	Calcium	RL	Flag	Chloride	RL	Flag	Magnesium	RL	Flag	Potassium	RL	Flag	Sodium	RL	Flag	Sulfate	RL	Flag	Total Alkalinity	RL	Flag
Monitoring Well	Ballard Pit East Well	MMW001	110			6.0			22			0.90			11			98			260		
	Ballard Pit West Well	MMW002	73			14			40			1.6			17			59			290		
	Henry North Pit Monitoring Well North	MMW004[a]	77			57		J	27			3.6			45			130			170		
Production Well	Henry South Pit Production Well	MPW022	50			5.0			13			1.3			7.0			0.38	0.50	U	180		

Notes:
[a] Average of the QA replicate samples reported.
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 11: October 2005 Groundwater Analytical Data - Filtered Speciation (mg/L) - Uncensored

Feature	Station Name	Station	Se (total)	RL	Flag	Se(IV)	RL	Flag	Se(VI)	RL	Flag
Monitoring Well	Ballard Pit East Well	MMW001	0.053			0.00034			0.069		
	Ballard Pit West Well	MMW002	0.022			0.0058			0.012		
	Henry North Pit Monitoring Well North	MMW004[a]	0.0018			0	0.00014	U	0.0017		
Production Well	Henry South Pit Production Well	MPW022	-0.000028	0.00010	U	0	0.00014	U	0	0.000050	U

Notes:
[a] Average of the QA replicate samples reported.
Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses*.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 12: October 2005 Groundwater Quality Assurance Data - Unfiltered Metals (mg/L) - Uncensored

Feature	Station Name	Station	Alkalinity	RL	Flag	Cadmium	RL	Flag	Chromium	RL	Flag	Iron	RL	Flag	Manganese	RL	Flag	Nickel	RL	Flag	Selenium	RL	Flag	Total Organic Carbon	RL	Flag	Vanadium	RL	Flag	Zinc	RL	Flag
Monitoring Well	Henry North Pit Monitoring Well North	MMW004	160			0.00056			0.00075			0.73			0.012			0.0010			0.026			1.0	1.5	U	0.0025			490		

Notes:
Data validation was performed in accordance with *MWH SOP-NW-18.1* and *USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses*.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 13: October 2005 Groundwater Quality Assurance Data - Filtered Metals (mg/L) - Uncensored

Feature	Station Name	Station	Aluminum	RL	Flag	Cadmium	RL	Flag	Chromium	RL	Flag	Iron	RL	Flag	Manganese	RL	Flag	Nickel	RL	Flag	Phosphorus (ortho)	RL	Flag	Selenium	RL	Flag	Vanadium	RL	Flag	Zinc	RL	Flag
Monitoring Well	Henry North Pit Monitoring Well North	MMW004	0.010			0.000040	0.000050	U	0.00057			0.010	0.015	U	0.0033			0.0010			0.084			0.0017			0.0023			0.037	0.045	UJ

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Table 14: October 2005 Groundwater Quality Assurance Data - Filtered Ions (mg/L) - Uncensored

Feature	Station Name	Station	Calcium	RL	Flag	Chloride	RL	Flag	Magnesium	RL	Flag	Nitrogen as NO_2/NO_3	RL	Flag	Potassium	RL	Flag	Sodium	RL	Flag	Sulfate	RL	Flag
Monitoring Well	Henry North Pit Monitoring Well North	MMW004	66			59			30			1.4			3.3			39			142		

Notes:
Data validation was performed in accordance with MWH SOP-NW-18.1 and USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.
Flag refers to the USEPA data qualifier (flag) assigned to the data resulting from the data validation procedure. More than one flag may be assigned during the data validation process.
Data qualifier definitions are:
(U) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample reporting limit.
(J) - The result is an estimated quantity.
(R) - The data are unusable.
(UJ) - The material was analyzed for, but was not detected above the level of the associated value. The associated value is 5 times the highest blank concentration. The result is an estimate and may be inaccurate or imprecise.

Appendix B
Agency Comments and Responses

Responses to Agency Comments Regarding the P4 Production Southeast Idaho Mine-Specific Selenium Program Draft October 2005 Groundwater Data Validation Report Memorandum

Comment 1

Page 2, Paragraph 1. Please remove the second sentence beginning with "Monsanto regards the uncensored data . . ." The Data Validation Report Memo is for reporting data; editorial comments are not appropriate.

Response: Acknowledged, and removed.

Comment 2

Please explain why detection limits for chromium, nickel, and vanadium in Table 1 and zinc in Table 6 in the Validation Memo are higher than the Estimated Detection Limits for Groundwater Analytes in Table 6-3 in the Final SAP.

Response: Elevated reporting limits (RLs) are based on dilutions, blank detection, and other analytical parameters and are a modification of the planning target reported as an EDL in a work plan. All elevated RLs due to blank contamination are identified in section 4.0 of the Inorganic Data Assessment Summary. A clarifying comment has been added to the memo:

> *"The listed estimated detection limit (EDL), is the projected laboratory reporting limit and does not account for reporting limits that may be elevated on a sample-specific basis due to dilution, contamination, or other analytical issues. Reporting limits shown in the data tables reflect any necessary elevations resulting from the data validation process."*

As noted on page nine of the Data Assessment summary, reporting limits for filtered chromium and vanadium have been elevated due to detected analyte levels in prepared blank samples. The discrepancy in the EDL for filtered nickel is a result of a laboratory adjustment. The difference between the EDL in the SAP [0.00020 mg/L] had been elevated by the laboratory to 0.00060 mg/L. This elevation did not impact the overall quality of the nickel data. The discrepancy in the EDL for filtered zinc is a result of a laboratory adjustment. The difference between the EDL in the SAP [0.0020 mg/L] were based on expected detection limits for the primary laboratory (ACZ). However, the results provided in Table 6 of this document were produced by the Quality Assurance laboratory (Applied Speciation and Consulting, LLC). The laboratory had elevated the EDL to 0.045 mg/L due to operational constraints and expected analyte concentrations. This elevation did not impact the overall quality of the zinc data.

Comment 3
Tables 1, 4, 6, and 7 in the Validation Memo include data for analytes not found in Table 6-3 in the Final SAP. These analytes include aluminum, iron, manganese, and speciated selenium. Although detection limits for orthophosphorus and NO_2-NO_3 as N were listed on page 37 of Appendix D, Laboratory Quality Assurance Plan (ACZ), they were not mentioned in Table 6-3. Please provide a table that includes analysis method, method detection limit (MDL), practical quantitation limit (PQL), reporting units, and holding time for these analytes: aluminum, iron, manganese, selenium (IV), selenium (VI), orthophosphorus, and NO_2-NO_3 as N.

Response: Please refer to all tables referenced in the Data Submittal Memorandum. The Supplemental Phase II SI Work Plan, Table 1 contains an updated list of analytes, methods, method detection limits, reporting units, and holding times for the October 2005 groundwater results.
Selenium speciation analysis was addressed in the Monitoring Well Installation Technical Memorandum (MWH, version 4 September 2006).
A complete list of all requested analytical parameters analyzed for the October 2005 sampling event has been included in the memo [Table I].

Comment 4
Tables 2 and 5 in the Validation Memo report data for unfiltered (total) analytes. Table 6-3 in the April 2004 P4 Production Southeast Idaho Mine-Specific Selenium Program Comprehensive Site Investigation Sampling and Analysis Plan – Final only addresses dissolved parameters, except for alkalinity. Please provide a table for the following total (unfiltered) analytes: cadmium, chromium, iron, manganese, nickel, NO_2-NO_3 as N, selenium, total organic carbon, vanadium, and zinc. The table should include method, method detection limit, practical quantitation limit, reporting units, and holding time.

Response: Table 6-3 of the SAP-04 provides groundwater analytes for both monitoring samples and receptor samples. The table indicated monitoring samples would be analyzed on a dissolved basis for all analytes excluding total alkalinity. However, this table did indicate that all receptor samples would be analyzed on a total basis for alkalinity, cadmium, chromium, nickel, selenium, vanadium and zinc.
A complete list of all requested analytical parameters analyzed for the October 2005 sampling event has been included in the memo [Table I]. This table includes both total and dissolved analyses for cadmium, chromium, nickel, selenium, vanadium and zinc. As agreed in the meeting August 29, 2006, future sampling events will include both total and dissolved analyses.